

**CLAIMS**

1. A device comprising:  
an interface circuit formed on a first integrated circuit (IC) for generating a differential current signal responsive to a reference signal and to a digital data input; and  
a circuit element formed external of the first IC for generating an output signal on the basis of the differential current signal.
2. The device of claim 1, wherein the device is a transmitter.
3. The device of claim 1, wherein the device is a CDMA telephone.
4. The device of claims 1, 2, or 3, wherein the reference signal is generated by a reference circuit on at least one of a second IC or coupled to the second IC .
5. The device of claims 1, 2, or 3, further comprising a reference circuit for generating the reference signal.
6. The device of claims 1, 2, or 3, further comprising at least one capacitor coupled between the differential current signal.
7. The device of claims 1, 2, or 3, wherein the digital data input is at least one of an analog inphase (I) and a quadrature (Q) baseband signal.
8. The device of claim 2, wherein the transmitter is a quadrature transmitter.
9. The device of claims 1, 2, or 3, wherein the reference signal is a voltage reference signal.
10. The device of claim 9, wherein the voltage reference signal is generated on the basis of a bandgap reference voltage.
11. The device of claims 1, 2, or 3, wherein the reference signal is a current generated from a reference voltage and a resistor.

12. The device of claim 11, wherein the output signal is a voltage signal and the resistor is external to the first and second ICs.

13. The device of claim 11, wherein the output signal is a current signal and the resistor is implemented on the second IC.

14. The device of claims 1, 2, or 3, wherein the interface circuit includes a current mirror for generating at least two mirror paths using the reference signal and a switch array for decoding the digital data input and for directing current from selected ones of the mirror paths to generate the differential current signal.

15. The device of claims 1, 2, or 3, wherein the digital data input is at least a four bit digital data input.

16. The device of claims 1, 2, or 3, wherein the digital data input is an oversampled digital data signal.

17. The device of claims 1, 2, or 3, wherein the circuit element is any of a variable gain amplifier (VGA), mixer, and power amplifier (PA) driver.

18. The device of claims 1, 2, or 3, wherein the circuit element is a modulator.

19. The device of claim 18, wherein the modulator includes a pair of current sources coupled to the differential current signal, and a pair of cross-coupled differential amplifiers, each differential amplifier coupled to a respective current source, the differential amplifiers operating to receive a carrier signal and to generate the output signal based, in part, on the carrier signal and the differential current signal.

20. The device of claim 19, wherein each current source in the modulator provides a bias current that is related to the reference signal.

21. The device of claim 18, wherein the modulator performs direct up conversion.

22. An analog integrated circuit (IC) adapted for use in a transmit signal path of a communication device, and responsive to an input differential current signal generated externally as a function of a reference signal and a digital data input, the analog IC being coupled to a reference circuit for generating the reference signal, and comprising a circuit element for generating an output signal on the basis of the differential current signal.

23. The analog integrated circuit of claim 22, wherein the reference signal is a voltage reference signal.

24. The analog integrated circuit of claim 23, wherein the voltage reference signal is generated on the basis of a bandgap reference voltage.

25. The analog integrated circuit of claim 22, wherein the reference signal is a current generated from a reference voltage and a resistor.

26. The analog integrated circuit of claim 25, wherein the output signal is a voltage signal and the resistor is external to the analog integrated circuit.

27. The analog integrated circuit of claim 25, wherein the output signal is a current signal and the resistor is implemented on the analog integrated circuit.

28. The analog integrated circuit of claim 22, wherein the circuit element is any of a variable gain amplifier (VGA), mixer, and power amplifier (PA) driver.

29. The analog integrated circuit of claim 22, wherein the circuit element is a modulator.

30. The analog integrated circuit of claim 29, wherein the modulator includes a pair of current sources coupled to the differential current signal, and a pair of cross-coupled differential amplifiers, each differential amplifier coupled to a respective current source, the differential amplifiers operating to receive a carrier signal and to generate the output signal based, in part, on the carrier signal and the differential current signal.

31. The analog integrated circuit of claim 30, wherein each current source in the modulator provides a bias current that is related to the reference signal.

32. The analog integrated circuit of claim 29, wherein the modulator .  
performs direct up conversion.